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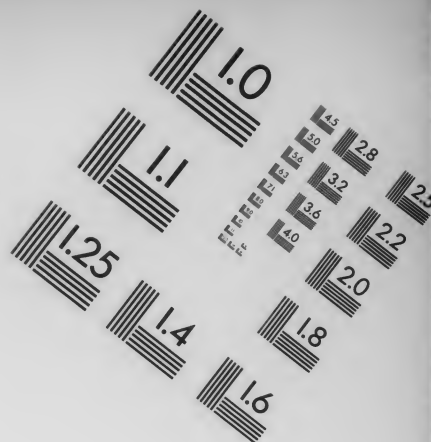
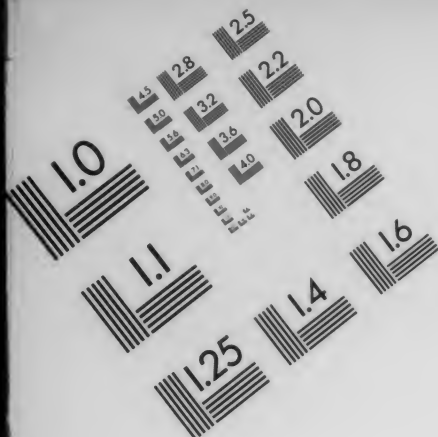


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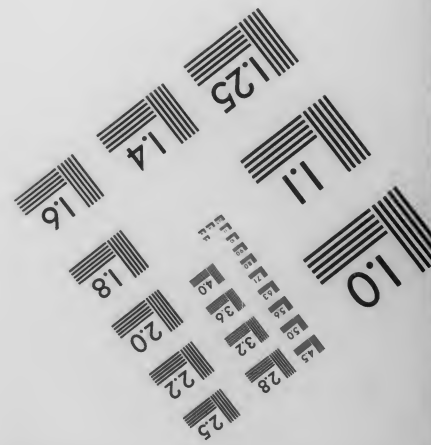
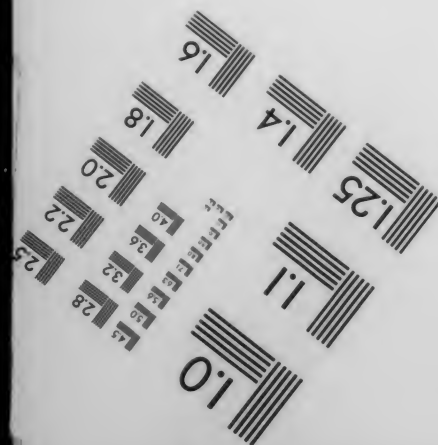
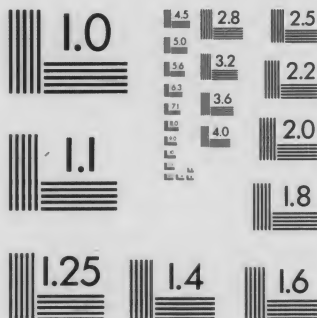
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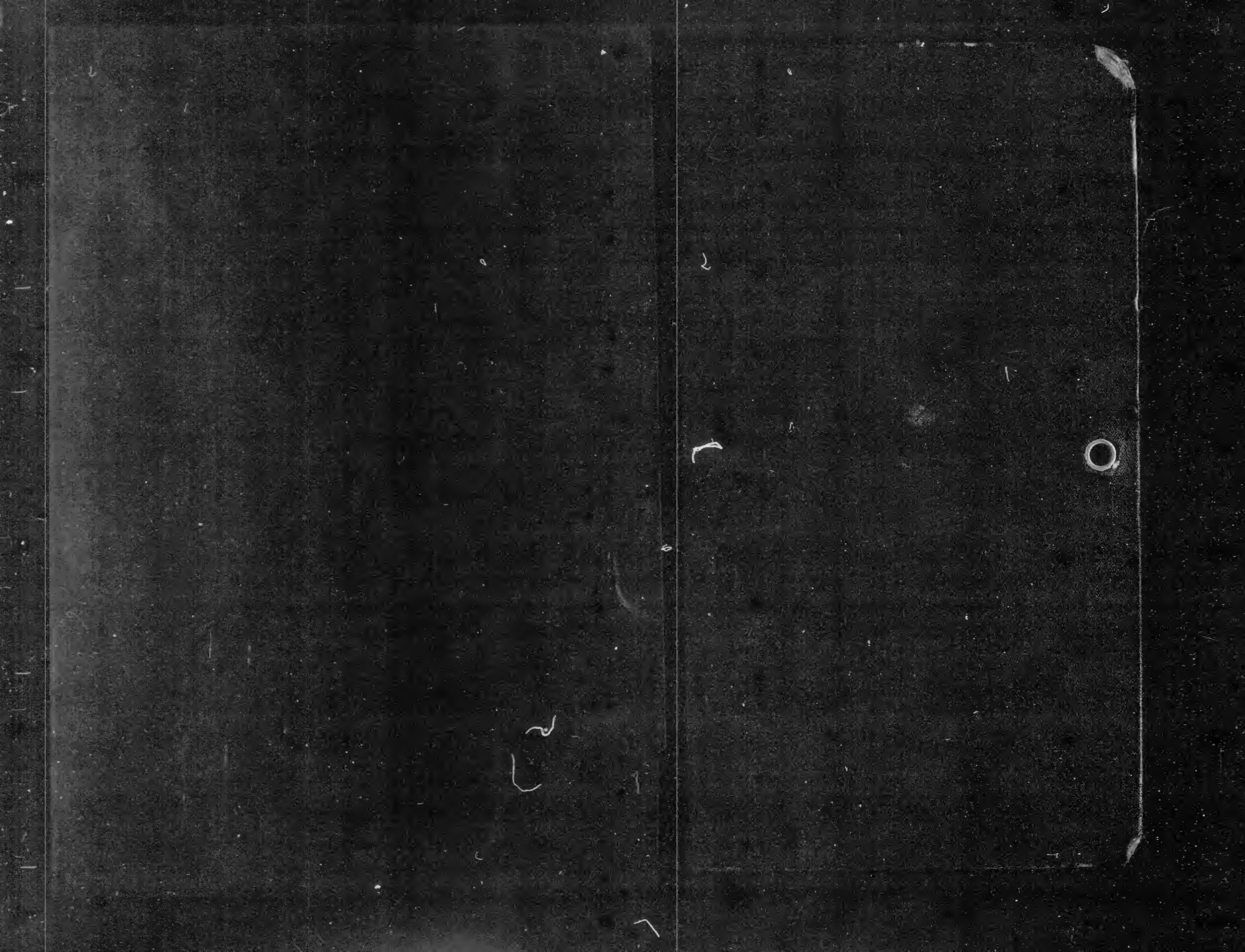
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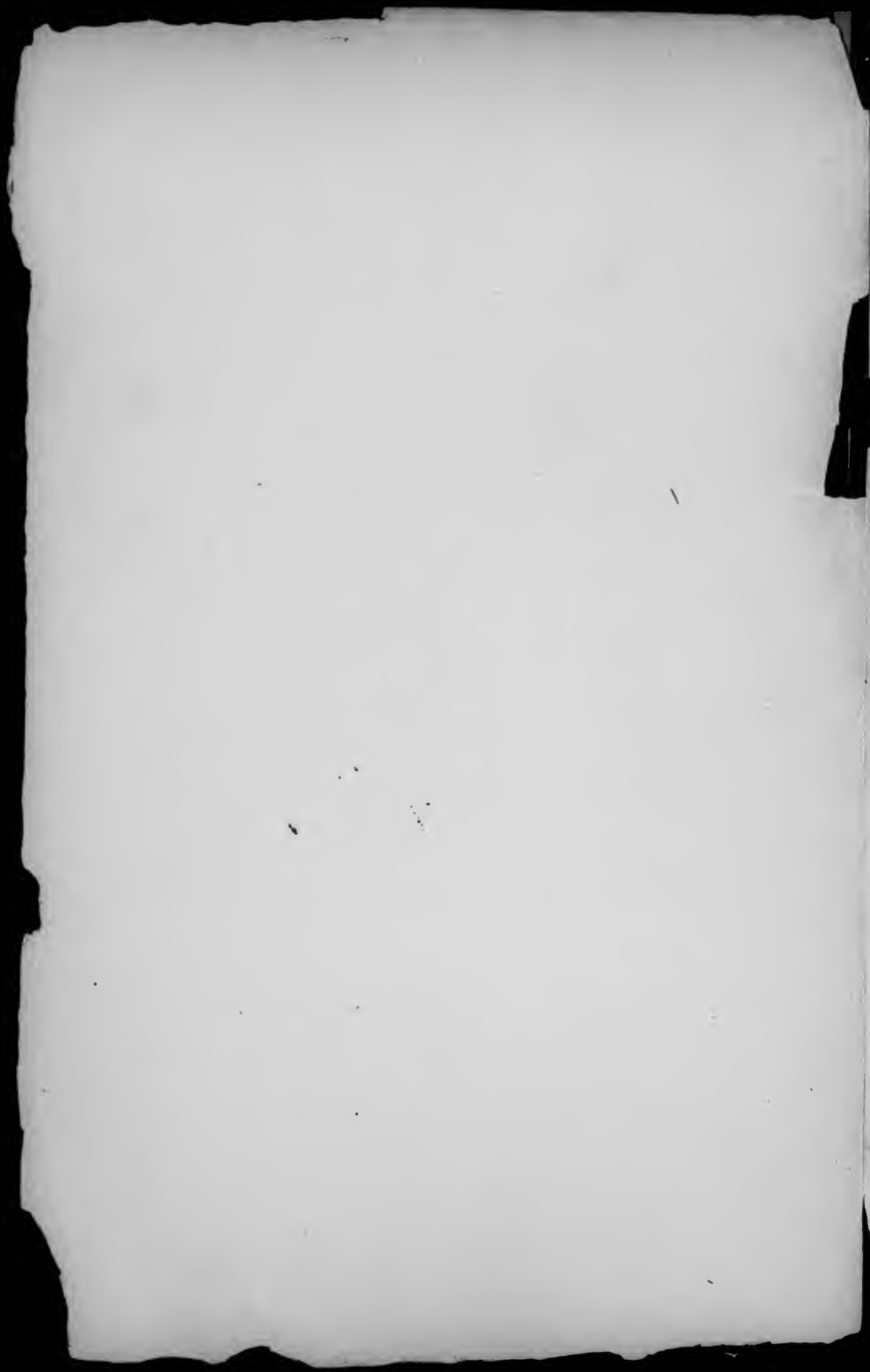
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ANOTHER PHASE OF MODERN PHILOSOPHY.

By E. K. PRICE.

(Read before the American Philosophical Society, March 1st, 1872.)

"All flesh is not the same flesh." "There is one flesh of men and another of beasts." "What is a man profited if he shall * * * lose his own soul?"

Those who have lived through nearly three-fourths of the Nineteenth Century, and witnessed the many useful and brilliant discoveries that have illustrated the past two ages, may not safely venture to discourage the boldness of any investigations that are legitimately pursued. Nor will any one properly criticise or censure those who in the main are doing good service to science, unless he clearly perceives that the great canon of philosophizing, which all must acknowledge, has not been duly observed. When such case occurs in matters of highest importance, it then becomes the duty of the humblest to speak out in correction of what he believes to be error, in the name of an all pervading philosophy, and in behalf of our common humanity, according to his conviction and ability.

The first lesson the scientist should learn is that of the limit of the human understanding, beyond which it is useless to attempt to investigate, and to recognize as inviolable those secrets which the Creator has chosen to reserve to Himself, as to which there is no response to interrogation. The second, is to make sure of all the facts requisite to the ascertainment of truth, and thence to draw only such conclusion as the known facts will justify.

The physicists of this century have studied life from its physical basis, and have too often made the life and the mind of man the product of matter. I propose to discuss this theory, particularly in review of Professor Huxley's Physical Basis of Life, both to show that he has drawn his conclusions upon inadequate facts, and that he has left out of view the facts that shew the distinctive nature and operations of the life and of the mind.

Let us first consider a few of the subjects having a bearing upon his theory, wherein the limit to knowledge is recognizable, beyond which further research is sure to be baffled. Nothing is more familiar to us than our own life. It is that self we should best know; and we can and do know many things about it; indeed all about it, except the mystery how it can possibly be, and can carry on its own functions. We can see and dissect our bodily structure of bones, joints, muscles, tendons; brain, nerves, tissues; heart, arteries, veins, etc. We see and feel the body's functions as they are carried on. We see how it is fed with food, and how the circulations are kept going and the strength is maintained; and know that the food taken is transmuted into the living being. We are invited to eat and drink to appease hunger and thirst, and thereby we both avert greater pain, and enjoy pleasure. The food is dissolved by the gastric juice secreted by the stomach, and is then *chyme*. This in its de-

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ascent receives the juice of the *pancreas*, and the bile from the gall-bladder of the liver. The action of the stomach keeps its contents in motion; and one portion, unfitted to enter the life-process, is rejected into the draught, the other called *chyle*, is a milky fluid, which the *lacteals* opening into the intestines imbibe and carry to the thoracic duct and into the venous system. The heart propels the crimson blood that is returned to it by the veins, together with the contributions of chyle, upon the lungs, where it meets the oxygen of the air, is decarbonized, and becomes scarlet; and this bright red blood, being returned to the heart, is propelled through the arteries to the extremities of the body, freighted with all the material the system demands; the corpuscles for bone, muscle, tendon, tissue, etc., and delivers them as and where wanted, and from the extremities the blood is returned through the veins to the heart. The process of life is carried on by ceaseless pulsations. The heart throbs; the arteries expand and contract; the stomach, the diaphragm and chest expand and contract; the lungs are kept in play, and we breathe; the intestines are operated by the peristaltic motion, and the glands and absorbents are ever at work. All this we perceive, or the anatomist or physiologist does for us, and to him all is as familiar as things of daily observation. But can he tell us what life is, or how it acts with an intelligence surpassingly wonderful? We see in this process that the food has become part of the living being; and it will remain such so long as it is useful to the creature, and when any part becomes useless in the animal economy it is rejected, so that after a few years the whole system is composed of new materials, but the same life of identical consciousness has survived; and may survive more than ten entire changes of the life-molecules. It is the life in the body and only the life that has had power to take in, digest, and assimilate the organic food we eat and make it part of itself. Why or how the thing we call life can do all this no microscope reveals to our sight; no skill of dissection can reach it; no cunning of thought can teach us. We only witness the process and the fact of life. The Power that created the life, and endowed it with its wonderful intelligence has chosen to keep this secret to Himself; and though it is ourself, and we are always conscious to its presence and action while we live, we can never tell what it is, or how it lives. We must accept it as an ultimate fact; but from that fact we may, if we are logical, infer that it had an Author, who could create it, and yet permit us never to know his secret, though that secret be our own life. The unknowable is thus dwelt upon not only to heighten our conception of Deity, but to shew where time and labor would be spent in vain; and also, because it is salutary that all who investigate science should do so with the humbling consciousness that all that is known bears a very small proportion to that which here cannot be known. Yet, from the known, from the evidence of its design, and power, and beneficence; its obedience to law, and harmonious movements; its grandeur and glory, we surely infer a Creator, Almighty and Omniscient.

Let us go back a stage in the being of this life, whose source and nature we are invited by Dr. Huxley to investigate. From a vitalized ovum, seemingly but a speck of jelly, the foetal being is developed into a body, with every part prepared to begin the hardening process of breathing life. Until birth it derives its nourishment from the mother by the umbilical cord attached to its navel. In due time it is expelled by nature's timely effort, that child and mother may continue to live. The physical ligament that united them is severed; and the separate life begins. The child now breathes for itself, and takes food into its own stomach. Still the nourishment comes from the mother, and nature has provided it as wanted in her breast. At those fountains the child drinks by a process its instinct has already taught it. Its food is that adapted to enter into its circulation and nourish its life. The lacteal ducts absorb the milk and carry it into the current of life. Why this should all be we readily understand; but how this harmonious process takes place with such sure observance and beneficent end we cannot penetrate. We say that nature and instinct do that we so admiringly behold. But if nature had an Author, then it was God who does it, to continue our race. Yet He retains the secret He chooses not to reveal.

But we must recede yet further to reach the physical beginning of life. In animals and vegetables of highest organization, we find that there are two sexes requisite to the reproduction of life. We will take the illustration from the vegetable kingdom, whence the inference may be made to the animal, including man. When the sun's warmth revisits us, and spring has come with her showers, we have also the flowers. These are not only for our pleasure and refinement of taste; but they are nature's bridal habiliments. The two sexes may be found in the same blossom; or in separate blossoms on the same, or different trees. The base of the pistils contains the female ovules, made but to perish in sterility unless they shall receive the pollen formed in the anthers of the stamens; but are not permitted to perish, for the breezes are ever transporting the dust of the pollen to the awaiting ovules; and the busy bee and insects, as they flit from flower to flower, assist in nature's requirement. In the speck of male dust is the beginning of life, to find its necessary receptacle in the female molecule of matter. The ovules are fructified; the flower fades and dies, for it has fulfilled its office; but the seed grows and matures, and is the germ of another life, that shall be like unto the parent. All this is watched, and surely observed; it is beautiful to behold, and of most beneficent purpose, for without it all vegetable and animal life would cease upon the earth. But the ultimate secret who can find out? Why the pollen should be requisite to fructification; how it should have the power thus to impart life, man has never found out, and probably will never discover. We have looked upon the renewed vernal life of the vegetable kingdom with sympathy, and in that sympathy we have invested nature with our own feelings, and she has seemed to us sensient of joy. And now, returning to ourselves, as subjects of the like process, we behold

the fruit to be not only new life, but in its consequences, to be man's chief resource for all his happiness; for hence spring, the comforts and refinements that belong to the family; the love of wife and children; intellectual culture, developed affections; and the training of human souls. We have been thus led by a pleasurable instinct, and a virtuous obedience, to continue our race, and have found therein our best welfare and highest excellence. God has done this, yet has kept His secret.

But science will ever interrogate nature; does so boldly but not blamably. She will with telescope ceaselessly sweep the heavens; she will with microscope untiringly explore a boundless life that everywhere teems unseen by the naked eye; she ever applies her chemical tests, and analysis as keen of the sharpened human intellect. Her researches are well rewarded; but she may not know all. For often it happens, that "Seeing ye shall see, and shall not perceive." With the microscope and scalpel the sources of life are explored, and science announces that all life, in the higher organizations, comes and is maintained by the blood propelled from the heart. Thence came the parental germs that have met and started the embryonic life; thence has come every increment that has given the body growth from the gelatinous germ to the mature man. You have traced the physical being back to nearly its starting point, and found its component parts all to have been molecules of matter, or corpuscles, or cells in the blood. These the physiologist declares to be the physical basis of life. We may not venture to deny this conclusion, for his dissections and magnified sight have revealed what he describes, and it comports with our observation. But chemical tests can but imperfectly verify his observations, for they can only be applied to matter dead, and when life has ceased to resist nature's chemistry, that chemistry is quick to change the material which had been the living source of life's supply. The assisted eye has seen in that crimson current, says Huxley, "innumerable multitudes of little, circular, discoidal bodies, or corpuscles, which float in it and give it its color, (and) a comparatively small number of colorless corpuscles, of somewhat larger size and very irregular shape." Huxley speaks of these as marvelously active, changing their form with great rapidity, as if independent organisms; and their substance he calls *protoplasm*. These he calls the units of the human body; and says, "Beast and fowl, reptile and fish, mollusk, worm, and polyp, are all composed of structural units of the same character, namely, masses of protoplasm with a nucleus." "Thus it becomes clear that all living powers are cognate, and that all living forms are fundamentally of one character." Thus while Darwin would make all living beings related by descent from a common parent, Huxley would make all to be related as creatures of the same blood.

Now the only reliable basis for such conclusions seems to be the magnified vision, limitedly applied, revealing similarity of looks and activities. The elements of the universal protoplasm are stated to be "carbon, hydrogen, oxygen, and nitrogen." But it is not shown or said that these

exist in the like proportion in the protoplasm of different creatures, which might explain much of the difference there is in their structure. Thus if the proportion of oxygen in the air was considerably increased all life would be burnt up; and if the proportion of nitrogen were considerably increased in the atmosphere we breathe, all life would be extinguished. Without much more observation than appears to have been made, science cannot insist upon the sweeping generalization Dr. Huxley has made, that all living creatures are cognate. His facts are few, and the theory deduced runs counter to the common observations of men. Likeness in the looks of the white corpuscles, without shewing of what they consist, or actually do, is not proof adequate to the induction. The ova in the ovarium of living creatures, and the initiate particle that vitalizes them, may appear much alike under the microscope; but from the ovum of one comes a fish, from another a fowl, from another a beast, and from another man. It is inferable that from the germ upwards the structures of these creatures have had various elements and in differing proportions. Were it not so, creatures so diverse in form and nature, it seems not reasonable to believe, could be the result. This objection Huxley does not attempt to explain.

Again, the different kinds of food that animals live upon shew that the nourishment that feeds their life, in its first vitalized stage, called by Huxley protoplasm, must vary in the nature and proportions of its elements. Some live on animal food only; others upon grasses and grain only; man upon animal food, grain and vegetables. Some can eat with impunity things poisonous to others. Some, too, secrete deadly poison from the material within them. The qualities of the things eaten or drank must enter into the circulation and growth, and these must furnish molecules or cells of qualities such as the body demands. Portions of food are to be rejected; first without entering the circulation, and afterwards through the secreting glands. The breath of the drunkard shews that alcohol has entered his circulation and is exhaled from his lungs; it is shewn in the capillaries of his face; and by dissection it is perceived in the brain. The nursing mother who has taken medicine transmits a portion of it to her child, by the milk secreted from her blood. Many medicines are administered with the view to their effect through the blood circulation. These enter the vital current and produce their known effects.

The cold blooded and warm blooded animals; the edible and poisonous; cannot be taken to be creatures of the same substance; and though they may have been built up from a fluid circulation, it cannot reasonably be inferred that they have been composed of the same elements; and if not of the same elements, the protoplasmic theory to unify life becomes baseless: "All flesh is not the same flesh."

But if the vitalized ova and protoplasm that start and build up life were homogeneous, or approximately so, only the more wonderful must be the power of the life which can construct creatures of the diversity we behold in sea, or air, or upon the land, from the same elements. From

countless globules the work is done. But each living creature is to reproduce its like, and is ever to reproduce only that; such is its mission, and it unerringly fulfils that mission. Either the life does this, or He that created the life. It is no known property of matter to produce life. And the more the elemental materials are alike, the more each life must do; the more it must rule over the materials to produce the diversified results; and the less the materials could have had mastery over them. We know well what the life appears to do, for she does all under our eyes and within us; yet she dwells herself in impenetrable mystery. What she is, and how she can carry on her operations, no man may fully know. The keenest in scrutiny are not agreed as to the import of what they see, and Dr. Huxley has not explained whence the colorless corpuscles he calls protoplasm are derived; does not say whether they are particles of food or chyle in transition to blood corpuscles, as that which is more vitalized, or whether they are derived from the latter; or whether red blood contributes any material for the construction of the body. The proportion of the colorless corpuscles to the red is less than three in one thousand (Dr. Carpenter's Physiology, sec. 15). To make the few colorless corpuscles suffice for the consummation witnessed, seems cause inadequate to the results, and is to make the vastly greater mass of red blood useless in the process, except it be merely as a tide to bear along the vital corpuscles to the places of destined use. He gives no reason why the white should be the exclusive material, or as he compares it, why the clay or brick, with which the house is to be built, is alone to be used, though that house is to contain also all other requisites to comfort; the plastering, doors, windows, floors, furniture and upholstery. It appears to be an assumption requiring proof, that the few white particles alone contribute to form and repair the differing parts, the bone, muscle, tendon, tissue, etc., and contrary to different ends to be subserved, and to the universal economy of nature that does nothing uselessly. These different parts demand particles of like nature to each respectively. We know, too, that the flesh may be changed in color and quality by the material fed, as the feeders of stock well know; and this seems proof that the elements that nourish and fatten are not protoplastically the same in substance or color.

Dr. Carpenter speaks of the red corpuscles as "especially concerned in preparing *pabulum* for the nervous and muscular tissues, the former of which is distinguished by the presence of phosphorized fats, and the latter by the remarkable predominance of the potash salts; and this view derives further confirmation from the fact, that a flesh diet seems to have a decided effect in the formation of red corpuscles." (Physiology, Sec. 160.) And he devotes some paragraphs to show that the colorless corpuscles are but another stage of the evolution of the red corpuscles. (Sec. 163, &c.) Again he says, "That the corpuscles, however, both red and colorless, are living cells, and that, like other cells, they possess vital endowments peculiar to themselves, is not now questioned by any one." (Ib. Sec. 196.)

We are to go deeper than a certain likeness in protoplasms, to understand so much of life as we are permitted to know. Dr. Huxley in his article entitled, "Yeast" disclaims having said anything new in his lecture upon "The Physical Basis of Life." He is, however, responsible for what he adopts, and for the breadth and length of his deductions. Protoplasm he considers the basis of life, and that it is a physical basis; and he assigns no other than this as cause of life, and makes the life but a property of the protoplasm. He says, "If the properties of water may be properly said to result from the nature and disposition of its component molecules, I can find no intelligible ground for refusing to say that the properties of protoplasm result from the nature and disposition of its molecules." Nature is deemed exuberant of one aliment, called protoplasm, that supports all the life of the world, whether received by the roots into the circulation of the trees, or by the stomach into the circulations of animals; "a unity of power or faculty; a unity of form, and a unity of *substantial composition*; does pervade the whole living world." He continues, "All the multifarious and complicated activities of man are comprehensible under three categories: either they are immediately directed towards the maintenance and development of the body, or they effect transitory changes in the relative positions of parts of the body, or they tend towards the continuance of the species. Even those manifestations of intellect, of feeling, and of will, which we rightly name the higher faculties, are not excluded from this classification." "This protoplasm exhibits the phenomena of life." These extracts, and the drift of the lecture show that the author is not merely showing what is the physical basis of life, but is attempting to show that life is but a property of matter, which accounts for all bodily and mental activities. He makes life a property of protoplasm; and protoplasm a thing composed of carbon, hydrogen, oxygen and nitrogen; as water is a thing composed of hydrogen and oxygen; and that as "aquosity" cannot be said to exist to produce the water from said two gases, so is "vitality" not to continue to be spoken of as something existing in the living matter, which had no representative in the non-living matter which gave rise to it. But the water is a chemical compound, and protoplasm consists of parts not chemically united; but united by that thing called life that resists chemical action; that has properties of a nature other than chemical, and is in all nature peculiar and discriminated. We see that he would thus sink the life into protoplasm, and make it and the intellect but a property of matter. But others should make better observation and induction.

It may well be asserted from all that we can observe and know, that matter cannot originate life; nor life matter. Each logically demands a Creator. Life cannot originate itself; but only continue the previously created life, by a power conferred on life to continue life. Dead matter may be vitalized and thus become part of the living body; but the life must first be to appropriate matter for its uses, to vitalize it, and to build up the living body and to continue it in life. In all time, only life has

initiated the beings of the successive generations. We have only to consider all we know to be assured of these truths. No protoplasm could now exist, unless life had produced it. It never has been chemically or otherwise than by life produced, except as first created. It is only found in the vital current produced from dead food. The immediate cause of it there must, therefore, be the preceding vital processes, endued with power to impart life to dead matter. In this result Dr. Carpenter considers the liver and spleen perform important service.

The interest of science and truth require that we here take a yet closer view of life's origin and perpetuation. Our love of truth and our reverence for God will preserve us from every unhallowed thought. No observation or philosophy can account for the first pair of each living species, otherwise than by the logic that all that we behold must have had a transcending Creator. Our race must have had its Adam and Eve, or first parents, ungenerated. Judging from all that observation, and science, and history can teach us, every subsequent being has had its incipient germ of life from a male parent, but only to become another life when that germ has met the prepared ovule in the mother that is to afford the offspring its nourishment and growth. It is only that seminal germ that is the incipient life, that first unites with the ovules and afterwards appropriates every other particle of matter that enters into the life of the new being. How nourished from the mother we have noticed. In due time, but by coarser food, the man and the woman of each generation are built up to their mature perfection. But it was the life beginning as a speck, that began and has completed the structure by employing the subservient molecular matter. The matter of itself could have taken no step in the process; it could have sent not a cell to form the growing, living structure, if the pre-existing life had not prepared that cell from matter drawn by the life-process into the life-current, and afterwards placed it where the life-builder required its service. That which was dead in the stomach took life in the blood; for the life-blood had power to impart its life to the elements it needed for the body's growth. It is true now as when Moses gave his commandments, "The blood is the life; and thou mayest not eat the life with the flesh."

Dr. Carpenter, says, "After the Chyle and Lymph have begun to flow into the circulating current, the *continued* generation of red corpuscles is due to the progressive metamorphosis of the corpuscles of those fluids, is an opinion that has come to be very generally received by physiologists." (Ib. Sec. 168.) "Looking, again, to the undoubted vitality of the corpuscles, and to the strong ground for regarding fibrin also as an instrument of vital force, we cannot but perceive that the life of the blood is as legitimate a phrase, and ought to carry as much meaning in it, as the life of a muscle." (Ib. Sec. 221.) "Thus then, we seem justified in the belief that the Blood, like the solid tissues, has a formative power of its own, which it exerts in the appropriation of the new material supplied to it from the food." (Ib. 222.) "There is not, in fact, a more re-

markable indication of 'the Life of the Blood,' than is afforded by its extraordinary power of self recovery, after having undergone the excessive perversion which is consequent upon the introduction of the more potent zymotic poisons; and every philosophical physician is ready to admit, that, is this *vis medicatrix naturæ*, rather than any remedial agency which it is in his power to apply, that he must look for the restoration of his patient." (Ib. Sec. 232.) It is the Life that is thus potent to carry on her work; to repel injury, and to cure.

Let any one look back upon the origin of life and its perpetuation, and he must say, in the retrospect, "between me and the first man of my race the thread of life has never been broken. I am more than link of a chain; I am part of that first life, never yet severed. As his was from God, so is mine that of an ancestry of *one continuous life*." At the inception of each generation that has preceded each of us through many thousands of years, life was but an inherited speck; but that speck was part of the next preceding life; commissioned to seize upon matter for its growth, in manner to fulfil the design of the Creator of the first life, and no other; and bound to arrest its own growth when that design should be filled out; but to continue the nurture of the normal being until its strength should be spent by its assigned lapse of years, or sooner termination by disease, or casualty. If it has left offspring the continuous line of life may never be broken, as certainly it will not have been as to any survivors of the race, whoever they may be, for between them and the first parent, at any future age, their genealogy, their life, will never have been severed. But the elements of matter that have composed the bodies of the countless ancestry will have been dissipated ten thousand times, and gone the many repeated rounds of life and death; yet one continuous line of life has connected all the generations by a continuity more complete than a chain of many severed but interlocked links; by an actual physical and vital portion transmitted from every parent to every child, being as truly one continuous life as that the planted willow slip continues the life of the parent tree.

Let not, then, the materialist persuade us that matter has done all this by matter's inherent power. The ceaseless life has done it, compelling inert matter to obey it; and thus will it use matter to carry on all the life of earth, while the world shall last. The dead matter so used could of itself exert no such power; could not initiate life; could exercise no cunning of construction; but only life can continue, carry on, and perpetuate life; so transmute dead matter to living, and make it part of that life, whose stream in humanity commenced with the first created man and will only end with the last. All this is sure induction from boundlessly observed facts; and *reverses the theory of the materialist*. And, all that life has done so wonderfully and so intelligently, it has done and ever does without a conscious will of its own. It must, therefore, do it by a will and Power that is above it, and that rules the life; the Power that gives and rules the instinct of the animal; the Power that gives the

mind of man and also rules it, except as He has conferred upon it free-will, within permitted limits.

The author of the essay on the Physical basis of life, carries his induction beyond animate life. He makes matter cause of life and he places vegetable life on the same basis with the animal, and makes the like protoplasm the source of both. Both, indeed, have their circulations in which are contained material elements for growth, but elements of a quite different nature and derivation. The animal lives on organic matter; dead matter that has had life in it; the vegetable derives its supply fresh from inorganic matter in the earth or air. This leaves us justly to infer that the elements of growth are of different kinds; and if so that there then can be no protoplasmic kindred, and nothing is gained by the theory. The fluid in the thistle and other plants have a contractility that gives movement to the circulation and diffuses the molecules or protoplasm. That shews a different impelling force from that of the heart of the animal; and rather indicates a want of identity of protoplasmic material, while the wants of the two growths demand different material. The animal's circulation constantly repeats its rounds, while the plant's growth depends upon a single fluid transmission from root to leaf, and from leaf to root, as the seasons change. Huxley would confound the two great kingdoms of nature, because there is a very limited agreement in the appearances and behavior of the fluid supply of both. Contrasting plants with the lowest animals, he says, "it may well be asked, how is one mass of non-nucleated protoplasm to be distinguished from another? Why call one 'plant,' and the other 'animal'?" The answer naturally would be because they are of different natures, shewing that their protoplasm should be different in elements, and because the animal has sensation, the plant none; and usually other obvious distinctions. To call the supply of vitalized food by the same name, without proof that its elements are the same, seems to be a summary way of breaking down distinctions between the different kingdoms of beings and things of life.

Continuing our attention to vegetable life let us judge the tree by the fruit. Can any body imagine the resin of the evergreen to be identical with the sap of deciduous trees? The inflammable turpentine to be the same as the watery sap that would extinguish fire? Can the oak and hemlock whose bark contains tannin have the same base as the sap of the sugar maple and sugar cane? Can the Tea and Coffee trees producing theine come from the same elements as the Palm and Olive trees? The gums of commerce, the varnishes, the resins; the spices, cloves, nutmegs; the vegetable coloring matters; tobacco, opium, hashish; and cinchonia and all vegetable drugs; it is impossible to believe that all these, and plants that produce deadly poisons, had the same base with our farinaceous food, and edible fruits. Theory that attempts to destroy these distinctions by a few observations so narrowly based as that in question, must meet with deserved incredulity, by mankind. The canon of legitimate induction is violated. A similitude of molecules presented to the vision by the micro-

scope, that tells nothing of their inherent properties or proportions, cannot determine the base of plants to be the same, when their quality as medicines, coloring material, or nourishing food, or poisons, are infinitely varied and the opposite of each other.

This physical basis of life that is thus extended so broadly, Huxley, in a measure, defines by saying, "that as all protoplasm is proteinaceous, or, as the white, or albumen of an egg is one of the commonest examples of a nearly pure proteine matter, we may say that all living matter is *more or less* albuminoid." Well, that may be, if sufficient latitude be allowed to the words "more or less," and yet all be as different as the things above enumerated, with many other things of contrary elements constituting their "living matter," for all that is not albumen must then be something else, and be part of the living matter that came with the albumen, or protoplasm, into the composition of the living being or thing. And this lets the theory fall to the ground. A partial similitude will not necessarily constitute identity. The theory demands too much when it requires identity of elements of growth in plants and animals of whatever kind.

The plant, un sentient, without mind or will of its own, is said, by naturalists, to affect its *habitat*, that is to choose where it likes to grow. This but means that it flourishes where circumstances most favor its growth, and does not elsewhere. In its life inhere wonderful mysteries that we can only refer to something above it, as we have for the life and instinct of animate beings. Its seeds are boundlessly strewn, but which shall grow and flourish will depend upon their relative power and mastery over competing plants. This contest and its results we readily understand. But how the fibres of the roots have their gift to select from the soil only those particles of nourishment which suits the plant's growth; how the plant can convert silt into flowers; how it can send the vital current against the law of gravitation, to the topmost branches of the oak and pine, surpasses our comprehension. We say, in part explanation of the latter, that the resin and sap pass upwards by capillary attraction, as we see water rise a limited distance in very small tubes, or through a sponge, or among the hairs of our shaving brush. This, in part, may suffice, but there must be help from vital action, as certainly there seems to be where life is employed in the fresh growth of annual plants, and the new branches of trees. The vital force must do the work, as when that is quiescent nothing is done. As in all animate nature we can only continue to look upon all vegetable life as a continuing, insoluble mystery; but of the highest beneficence. Trees and plants, ever true to the life and duty assigned them, will furnish to man, beast, fish, reptile, bird and insect, the food they require; and to man the medicines, gums, dye-stuffs, and spices he wants; and also the blossoms, flowers, and scenery he loves and enjoys with an ever refining enjoyment. In truth, directly or indirectly, all the animate life on land, or in air or sea, is supported by the seemingly self-sustaining life of the vegetable kingdom. The latter is created that the former may live; and all that human souls may crown the creation. Yet

all vegetable life, as all animal, now existing, judging by all we see or know, are the continuous threads of the first created life of their respective species, kept forever unbroken and unentangled.

And as every species in vegetation selects and assimilates different elements from the soil or air, and for different parts of itself, as wood, bark, leaf and flower, so does every different species of animal select those essential to its own well being; and to complete the creature that the life is busy in constructing, and it does construct, but that the parent was. These ends demand differing elements; and however seemingly alike their protoplasm and blood, those and whatever else is tributary to the varied growth and differing developments, must be equally different. It is vain for science to say to the common sense of mankind that the cells that compose the bone and cartilages, tendon and muscle, the tissue, skin, hair, all opaque, and transparent eye, are identical in material, more than in shape or function, or fruit. The sight, the tests of chemistry, commercial scrutiny and scientific classification, alike contradict the theory, and tell us it cannot be true that the protoplasm or blood of animal and vegetable, and every kind of each, can be the same. The young of the mammalia drink milk drawn from the mother; and the milk of the different kinds may look much alike, yet not be identical, and not alike be suitable to nourish the young of all. We may take leave to regard it as a myth that Romulus was suckled by a wolf; but will implicitly believe that neither "do men gather grapes of thorns, or figs of thistles."

It is of necessity that all animals and vegetables that have a vital circulation must take their food into their circulations in fluid form, that it may thereby traverse the body, and in sufficient minuteness supply its wants of growth and repair where needed. The stomach of the animal elaborates the solid into fluid; the roots of the vegetable take up the material it wants, assisted by the rains and water that give the required transporting fluidity. But that each process sends into the circulation the same elements for animal and tree, there is not furnished the beginning of any proof, while the different natures of the growths indicate very surely that their wants are not the same, that their supplies are different, as their products are infinitely diverse. It must, therefore, be misleading to maintain the theory "that all living powers are cognate, and that all living forms are fundamentally of one character." There is yet a vegetable kingdom and an animal kingdom, and those infinitely diversified. "There is one flesh of man, and another of beasts."

Seems it tedious and unnecessary thus to have traveled over the grounds of this theory in so much detail? The conclusion to which it is carried shews how important it is to have carefully considered every foundation stone of the superstructure. It concerns man the most deeply of all questions to know what he is and what he is to be. That such question is involved is shown by the conclusion at which the theorist has arrived. In his own estimation he has proved the protoplasm of the vegetable and animal, animal including man, to be the same: Thus Professor Huxley

says: "As I have endeavored to prove to you, their protoplasm is essentially identical with, and most rapidly converted into, that of any animal, I can discover no logical halting place between the admission that such is the case, and the further concession that all *vital action* may, with equal propriety, be said to be the result of the molecular forces of the *protoplasm* which displays it: And if so, it must be true, in the same sense, and to the same extent, that the thoughts to which I am now giving utterance, and your thoughts regarding them are the expression of molecular changes in that matter of life which is the source of our other vital phenomena." Is there anything of uncertain sound in this? He expects from it the outcry of "gross and brutal materialism;" and then confesses that "most undoubtedly the terms of the proposition are distinctly materialistic." What more he next says I will show hereafter.

Thus the logical climax of the theory; the capstone of the edifice, appears to be that the thoughts and mind of man, being derived from the same protoplasmic source as the lower animals and the plant, and the physical organization being thence built up, it is consequently to follow, that when the life of this body shall be dead, there will be no mind, no soul, to survive; that it can only with truth then be said, "the bubble of life has burst!" Such would be the natural conclusion of mankind from such premises. And if such be the import of human life, what then is the worth of creation! Are the dignity of man, and the glory of the universe, and the exalting faith of the immortality of the soul to be thus cast down, and shorn of their grandeur and of their logical significance, because the works of the Almighty shew some faint resemblances in the early processes of life? That because He makes matter subservient to life, and life to the mind or soul, that, therefore, all must be matter and all but matter? If such be the logic of creation, as only now found out by very limited applications of the microscope, it would seem to be wise in us to wait a thousand-fold further applications of that instrument to the invisible elements of life; and not the while refuse to use our eyes and the telescope as to what they can see, and also to use our understanding and its logic as to what they can clearly know, before we surrender our faith in all that humanity, in its best conditions, through the centuries of time, has taken to be the import of our being and the meaning of the Universe.

Happily, however, for our relief, so far as his authority will avail, Dr. Huxley makes the admission that, while he is logically carried to a materialistic conclusion by his philosophy, he is, in truth, no materialist, and that materialization would "paralyze the energies and destroy the beauty of life." He has perceived within himself a nobler sense of the import of his being, that arrests his individual conclusion, and deflects his logic, so confidently asserted, into an opposite direction. That is well, and some comfort; but may we take his mere opinion as adequate counterpoise to a theory he has advocated with elaborate detail and apparent earnestness of conviction? Those who love skepticism will continue to abide by his theory, which he has not himself controverted.

In one half paragraph he confesses to a contradiction ; to two opposite conclusions ; that the theory he has announced as logically true, he, himself, does not believe ! Thus he says : " And, most undoubtedly, the terms of the propositions are distinctly materialistic. Nevertheless, two things are certain : the one, that I hold the statements to be substantially true ; the other, that I, individually, am no materialist, but, on the contrary, believe materialism to involve grave philosophical error." Dr. Huxley has not said this to accommodate himself to the orthodox opinion of men. He who takes occasion frequently to encounter and brave that opinion cannot thus have insincerely conformed to it. He is obviously too candid and too brave for that. He seems in all his conduct to follow what he takes to be the truth fearless of consequences. But what then, must be our judgment of him ? Can it be other than this, that he is possessed of a truer logic, based upon vastly more facts than the few embraced in his protoplasmic theory ; and that his individual belief, for which he has not given us the grounds, contains the actual truth ; and that, consequently, we have Huxley's authority to condemn emphatically Huxley's theory, built upon " the physical basis of life." But who will answer for his insincerity to the truth of science ? For the consequences of the infidelity he has preached in his sermon ? He proposes to conduct his hearers out of the slough, into which he confesses he had plunged them, and meant to plunge them ; but we read on to the end of the discourse in the vain expectation of finding the stepping stones that would conduct us out of the slough to the firm land. Does he not in this trifle with his own and the understandings of men ? His philosophical speculation is one thing ; his individual opinion is another. He describes no mitigated materialism that represents his own conviction. That which he has explained makes his uttered thoughts but matter ; for these, he says, " are the molecular changes of that matter of life which is the source of our other vital phenomena." And this is his hopeful and confident assertion : " And as surely as every future grows out of past and present, so will the physiology of the future extend the realm of matter and law, until it is co-extensive with knowledge, with feeling, and with action." Thus the science of the physical basis of life is to absorb the mental and emotional, and make all one, all physical ; all to have but a physical basis and a physical consummation. And yet, again, he confesses to two hopeful beliefs, but flagrantly at variance with his pretension for physiology : " The first, that the order of nature is ascertainable by our faculties to an extent which is practically unlimited ; the second, that our volition counts for something as a condition of the course of events." Yet neither of these could, logically, be a true belief, if man be but the product of matter and law, and these be taken as sole sources of his knowledge, feeling, and action ; for all would yet be fatalism, as well as paralyzing materialism. Indeed, there could be no thought if all were matter. Mere changes of molecular matter could not be means to expand our knowledge, or rule the course of human events. What would it be to the world and its events, that the material of my brain had un-

dergone molecular change ? Thoughts are not material growths ; are not buds or sprouts ; are not protuberances or indentations, or engraved lines ; or secretions or excretions of matter, or the shifting of any molecular living particles, by any testimony ever presented to the human mind. Men cannot conceive that matter can be thought, or thought matter ; and all its phenomena declare it unlike all else in created nature, and without element of matter. The mind of man has, indeed, a likeness unto God.

Dr. Huxley says, " the fundamental doctrines of materialism, like those of spiritualism, and most other 'isms,' lie outside the limits of philosophical inquiry." Says, " It is also in strictness true, that we know nothing about the composition of any body whatever as it is." But is not all knowledge within the limits of philosophical inquiry ? And, though we cannot know how matter, or life, or mind can be, or what in essence they are, yet we certainly can and do know much of the properties and actions of each and all of them, and of their differences from each other. We must not become so far positivists as to refuse to know all that is knowable ; and especially may we not ignore the human mind. It is our duty to search after all attainable truths, and when we have come to the limit of our faculties, there reverently to pause in the presence of an infinity of knowledge known only to God. To seek knowledge only of things physical, and things of life, and there to set the limit of inquiry, seems but the prudery of scientific caution, that can win no credit for wisdom, nor increase our trust in the authority of the teacher.

In this discourse we have assumed that in its origin life had a Creator, upon the logic that such effect must have an adequate and a far-transcending cause. As matter and life logically demanded a Creator of each, and neither produced the other, so does the mind or soul, by even higher claim, logically demand a Heavenly Father. Its nature is too distinguishable and transcending to be confounded with matter or life. Life dominates matter, mind dominates them both, and God them all. The soul asserts a higher than a generated parentage, and a large immunity from the mutations of matter. Matter ever slides from under mind, but its integrity is untouched. The matter that has sustained the life of one as old as the writer, has wholly passed away from his body more than ten times ; and the more rapidly changing parts have been eliminated with vastly greater frequency. Yet the mind in this body has a memory of conscious identity from the year next before the first of the current century. Such imperishable mind can have no element of ever-shifting matter in it, and must be a being of different origin and nature, both from the material of this body and the life of this body. That material is ever changing, and is often renewed, until the body's death ; and when the life that maintained the organization shall have succumbed, and have ceased to exist, except as it has been continued in a living progeny, we justly infer that the mind, or soul, will outlive the organization and the life, and will return to its Giver, to share His pleasure, or meet His

condemnation, as deserving. This is inferred from what we know of the nature of mind, and the induction that creation must have an adequate significance. The great truths of Scripture are inductively reattested by the truths of philosophy.

Thus, then, stands the phenomenon of our being. The matter that enters the body may be in itself, for all we know, imperishable, but is certainly transient in each living body, remains there until effete, and is then dismissed by the vital process, or at death passes into vapor and ashes, and enters the further rounds of chemical change and vegetable and animal growths. The organized being of one generation of the life of an unbroken continuity from the first parents has come to an end, except as continued by offspring; but the individual, ungenerated, immaterial mind that was neither the matter nor life of the body lives on forever.

We have seen the life to assert a dominating power over all the material that has built up the organized body. This life process is essentially one independent of the mental will. During gestation this is plainly so; and is so through life, except as the mind has power to refuse to conform to the laws of health, and may mar life's healthful functions and duration, even to the perpetration of suicide. The circulation, digestion, assimilation, and eliminations go on in health almost without our consciousness; but we are compelled at intervals, by hunger and thirst, to keep up the needed supply of food and drink. The brain and nervous system are also thus nourished, as the rest of the body, though it is the system especially subjected to the instant dominion of the mind or will. The material brain and nerves are not the mind, nor do they produce it, but are servants of the mind. Mind is other than the brain and nerves, and is other than the life; and it alone can rule, and must give account of itself, the body, and the life. The vegetable carries on all its given life-processes, without sensation and without mind. The animal below man does the same, except as it has a limited mental development that we call instinct, has also, limitedly, brain, and nerves, and senses; all of wonderful fitness for its preservation, which we may not now pause to consider. The life of plant or animal will grow to its assigned limit, will cure its own wounds, and reproduce its kind, but is other than the instinct of the animal, yet more remote from the mind of man. It alone, of all beings, has moral responsibility.

Among the hundred, or thousand, wonders of the life, whose causal explanation can be in Deity alone, and over which mind had no formative power, is the fact that every kind of nerve has been fitted for its special duty, and can perform no other. There is, in this, admirable design to prevent confusion. The nerve of sense can give sensation to, but can impart no mandate from the mind. The nerve that executes command will give back no sensation. One of each is attached to each serving muscle, but neither can do the appointed work of the other. The nerves of sight, hearing, taste, and smell can neither of them perform the func-

tion of any other. The brain, the commonly supposed seat of all feeling, has in itself no feeling. Sir Charles Bell says, "The brain is as insensible as the leather of our shoe; that the brain may be touched, or a portion of it cut off, without interrupting the patient in the sentence he is uttering." The brain and the sensitively perceiving mind must, therefore, be different. The one is cut away; the other suffers thereby no interruption of thought or its expression. One feels; the others does not. One commands; the other obeys. The muscle is moved by the will and exerts great power, but through a brain and a nerve without muscle, or physical power, so far as is seen. Apparently an immaterial mind says to every muscle do this, and it doeth it, but by the word of command. Truly, the body, life and mind, each, is very wonderful, and most wonderful is their combination; a combination of dissimilar things, made to act in antagonism, and yet bound to act in harmony, for the welfare of all. Awake, the mind is to regulate all for the common good, yet may not, without injury, much interfere with the life-process of the bodily organization. Asleep, the physical reacts, taking a limited advantage of the unwatchful mind that has let drop the rein of discipline. The mind in the semi-consciousness of dreams ranges through bright scenes and beautiful images, if all be well with mind and body; but if either be unhappy or disordered, a dark change comes over the happy dream, and then threatened dangers and startling incidents awake the mind to resume its discipline, happy then to find its troublous adventures "but a dream." Yet in the sleeping and waking experience the mind and body have acted and reacted, both as united, and often as opposing powers.

The materialist sometimes ventures even to liken life to a process of crystallization or chemistry, or mechanism, and mind as well. Crystallization follows one law, and, the world over, does one thing, and forms its crystals and gems of each kind on the same angle; her ultimate particles of the same kind being of the same shape, and obeying one law of attraction. The chemical affinities act under laws as certain, and under the same circumstances act always in the same way. Living things are more complicate; and the process of growth is carried on by an apparent choice as to the selection of material and in the deposit of different particles for the growth of the several parts differently from crystallization and chemistry. Life is not molecular, or magnetic, or chemical attraction; but is a vital process that employs various materials; utilizes them, and disposes of them differently to perfect the common economy. It employs, it is true, chemical processes in breathing, etc.; and in the heart, eye and ear, and in the action of the muscles, mechanical structures and powers; but all is moved by and dependent upon the life that has made from matter living molecules, and with them constructed the creature. But all this, though subservient to, gives no explanation of the mind; shows no kindred to it; gives no information why we have consciousness, how we can feel and think. No proof is offered, nor can it be believed, be adduced, to shew that the mental action consists in but physical changes. The

brain, as the arm, may shew weariness when overtaken by the mind; may suffer waste of material, of phosphorus if you please, but that will not prove mind to be brain, or brain mind.

The all transcending importance of this subject demands our yet further patient consideration. On the discrimination of the mind of man from the body and from the life, depends our truthful apprehension of the great problem of what we are, and what we are intended to be; the most important consideration that can occupy the human mind. Can we, as rational beings, live over three score years and ten, or more, and not devote much of our time to reflect upon this subject, the highest of philosophical studies? This is not an "ism" lying outside philosophical inquiry. No religion can begin her task, no philosophy can consummate her study, that has not persistently dwelt upon it and made it the theme of habitual thought. It is the necessary climax of all the study that can give us the solution of the problem of the universe. In this age of materialistic skepticism, that respects no time-honored opinions, or sacred traditions, we must begin where the physicists begin, but may not stop where they are wont to stop; may not refuse to know the ultimate significance of all created things and beings, body and soul, as they are constantly presented before our senses, and demand interpretation from our reasoning intellect. We may not fail to examine and consider all the true facts that the naturalist and physicist make the basis of their theories, nor all other facts that must be taken into view, for a true solution of the problem. No *a priori* assumptions may be admitted as basis of induction; and it must not be allowed the skeptic to say, as he is sure to do, that he only builds truly upon certain facts; that his faith alone stands in inductive truth; that religious faith will not bear the test of induction from ascertained facts. And we must not permit him to make his inductions from less than half the facts that define our being, and these the less important.

The mind's thoughts are not propagated as things of physical growth. We but borrow in relation to the mind, the language of the garden and use it figuratively, when we speak of sowing mental seeds, or propagating ideas. The thoughts I am speaking I do not lose; and your gain, if any, is not a material acquisition, nor, so far as you or I can ever know, has the effect been produced by molecular changes in our brains; and if such changes do take place they are a life process of the brain, and cannot, conceivably to us, be the thoughts that enter into and exercise your minds; thoughts that as believed worthy, or as your minds may make them worthy, may become permanently your thoughts, after the molecular particles moved, if any such, will have long passed away. The mind may, indeed, for aught we know, and we may so conjecture it probable, put the brain in motion, as we know it will thrill the nerves, and can hurry the blood; as the wind can heave the water into waves, but the cause and the effect are different, and continue ever after as distinct as before.

Physiology teaches us that the mind is seated in the brain; for with the

brain is connected every nerve that gives to the mind the sensations received by it; and with the brain is connected every nerve that executes the will of the mind upon every muscle of the body movable by the will. A ligature round the nerves of sensation will prevent the mind receiving sensations by them from a point beyond the ligature; a ligature round the nerves that obey the will, will paralyze its power to command the muscle to which the nerve is attached. The perception and command are intercepted at the ligature; and beyond mental power has ceased. The mind that is the light of our being, sits enthroned in a chamber of life-long darkness, cushioned upon medullary matter; moved by no muscle, yet moving every motor muscle as bid to obey its will. The eyes are called its windows; but that is to speak figuratively, for no ray of light ever enters there; the senses are called its portals, through which we learn all we know of things without us, but no sense ever lets into the mind one particle of matter.

We have seen that the life of the body is fed by material food taken into the stomach. The mind is not so fed, nor fed by any material food. The mind, or a mental capacity, exists in the child at birth, underived from sensations, for it must pre-exist to receive the first as all after sensations. Though we may not know how it can exist; of its nature and operations we can observe and know as much as of matter and life; and we have no more right to refuse to know all that we can understand of it than of them. It is the nobler part of our being, and that which is most characteristic and most prophetic of the purpose of existence.

The immaterial mind is fed but with immaterial food. It draws this from sensations without and within; and thus learns the nature and qualities of all perceived things. It digests that it receives; forms conceptions or ideas by its inherent power; has capacity of comparing, thinking and judging, and thus is also self-fed from within by immaterial thoughts as no life is fed. Thus we may observe the mind to be developed; the mind that can frame the constitutions and laws that preserve human society, and that can administer them; that can wield the physical arms and resources of the nation; and can develop the truths of philosophy and religion. All this is done by thought, only by thought; by thought, indeed, sometimes inspired; and the quieter the body and the brain, the more surely truthful is the mental judgment and the might of its power.

Now let us consider some of the sensations that the mind notices as perceptions and conceptions, and stores as ideas, to be used in thought and judgment and see if they own a material source. The eye opens upon all visible things, and by a lens the picture of them is represented on the retina, or back part of the globe of the eye; a picture the reverse of that in the outside world, upside down, right side left. The retina is the expansion of the optic nerve leading to the brain, that gives to the mind a perception and conception of the image on the retina; not that the image can itself be taken through the round opaque tubular nerve; not that there is any material picture on the retina, any more than the reflection from the mirror is a real picture on its surface; but the mind has capacity

to reach forward and take perception of the picture truthfully, but takes it restored from its reversals by the convex lens to its true position, as was the outside reality; up-side up, and right side*right, as is at once verified by the outreached hand. This power of perception is something more, and quite different from, the materially fed animal or tree. There is no protoplasm here. The perceptions, and the ideas thus derived through all the several senses, are alike immaterial. Through the eye, the ear, the touch, taste, or smell, it is not perceptible, nor conceivable, that outside matter enters into the brain, yet less into the perceiving mind. It seems more reasonable to infer that the mind, which by its will can command and put in action the many muscles of the body, through the nerves of command that extend from the brain to them, can also reach through the distinct system of the nerves of sensation, wheresoever impinged upon, and take note of all sensation. Thus doing the mind is filled with perceptions, conceptions, ideas. But when it perceives, thinks, compares its ideas, recalls its memories of long past years, forms new judgments, and the will sends forth its mandates, we are not to believe it is carrying on material operations, before the muscles have acted; that thoughts are the bubbleings or heavings of medullary matter; or as electricity they are elicited by material friction; or as the chemical corrosions of a battery; or are any other material production. There appears no evidence of any such processes, and these indicate no relationship with mental action. The memory of half a century ago, cannot be a recalling of the matter of the brain of that time; the perceptions taken into the mind contained no material element, and the mind's elaborations of immaterial perception cannot be elaborations of matter, or produce material thoughts. Thought that ranges instantly over creation, cannot be bound by the limitations of matter. Whatsoever is matter must have the bounds of matter; matter must have the properties of matter. Thoughts are not so subject. It is not in the nature of matter to range beyond itself; to look to the past or future, or in imagination to survey the world and universe, and all that in them is. It is not in the nature of thought to be subjected to mechanical or chemical tests. If thoughts be but matter they must be eliminated by the body's ever busy absorbents as waste material, and there could be no memory of them; but the mind holds not her rich treasures by so slight a tenure. The intellect would then sit upon a throne whose base would be incessantly undermined; nay, be rapidly swept away, since the new tissue supplied to the brain by the life-process would not replace the lost ideas. Immaterial thoughts, the immortal mind, is not carried off as waste and effete matter; as sewage through the sewers of the body. Newly deposited brain tissue from the blood would not restore thought that has vanished. Memories are not as characters written on the sand to be washed out by ever refluxing waves. The memories of a well preserved old man, whose strength has not failed, nor his eye grown dim, make him a being compounded of the characters of three generations; with mind informed by the pressures and knowledge of

them all; with gathered experiences and forethought that make him largely prophetic of the future. So the Poet's vision has seen and described such an octogenarian; or knew him and sketched him from life:

"Age had not tamed his eye; that, under brows
Shaggy and grey, had meanings which it brought
From years of youth; which, like a Being made
Of many Beings, he had wondrous skill
To blend with knowledge of the years to come:
Human; or such as lie beyond the grave."

Wordsworth.

As the visual picture entered not the brain, so will not the vibrations of sounds in the air. The speaker's mind is filled with thoughts which he is earnest to inculcate upon his hearers, and vocally he gives them to his thousand listeners. I do not say *transfers* them, for he has not parted with one idea, though they have got all he has spoken. No phosphorus, or any other matter has left his to go into their minds. His voice has but made vibrations in the elastic air, which otherwise has been unchanged. These vibrations have spread concentrically from their centre, with their ten thousand distinctions of modulated words. These sounds have reached the ears of the listeners, and their perceptive minds have reached forward through the auditory nerve, whose extension by delicate fibres floating in the water of the vestibule of the ear have been stirred, and given to the mind the perception of every variation of the voice of the speaker; of its formed words, its inflections, cadences; its tones of earnest pathos and its joyous or sad emotions; and all its varied meanings. But no vibration of the air has reached the interior of the brain; indeed, no material idea had traversed the air to reach the hearers. Air-borne wavelets of words, or conventional signs of ideas expressed only by distinctions in sounds, have reached the easily-moved hairy fibres of the auditory nerve, and imparted motion to them; but there the material motion has ended, yet the perceptive mind has caught the many distinctive meanings. But no motion, no sound, no matter, has entered the brain by the auditory nerve; for the nerve there embedded is constricted in passing through a narrow orifice in the skull; is not itself floated, or tensioned, to transmit vibratory motion; but cut off from the air, the vibrations of which have been spent upon the drum of the ear and the wonderful apparatus, and water within the vestibule; and were this not so the vibrations of the air are not transmissions of matter; but when the voice has sounded, the air and the ear are again as if no voice had spoken. The mind has taken the perception of the distinctions of sound from the fibrous extension of the auditory nerve. Had the same words, or conventional representations of thoughts, been written or printed, and then been read by others, these would have received their characters pictured on the retina, without the charms of vocal expression, and alike without the reception of any material element in the brain.

It is obviously the same as to the sense of touch. The finger will give the perception of the shape, density, temperature, etc. of the object

touched, but no matter or thing will be transmitted into the brain. The mind by its perceptive power in the brain and nerve will have taken notice of the properties of the object, and formed an idea of it. By no sense has the brain or mind been materially fed. Here we should recollect the physical condition of the brain. It fills the chamber of the skull; is always dark, is always silent. Therein is the source of all the intellectual light in the world, yet not one real spark, or beam of light has there ever glowed. No ray of light can depict a picture therein; no vibration can carry a sound within it; no tasted food, or touched thing, nor aroma of incense, can enter there. But the nerve of each sense has been affected by an outward object, and the perceptive mind has reached to notice the action of the outward thing upon the nerve. In the eye it is a picture thrown by the light on the retina and it is there perceived; in the ear vibrations have stirred the floating fibrous extension of the auditory nerve, and there they have been perceived with their varied distinctions; and by the other nerves of smell, touch and taste, the perception has been at the point of contact. The mind's command reaches by the motor nerve to the remotest muscle; sensation by touch may reach as far; and there appears to be no reason why the mental perception has not reached to the point whence such sensation is said to have come. The mind wills to move the toe, and it has at the same instant the perception that it has moved. Indeed, each nerve of sensation has its local duty to inform the mind instantly of every impingement upon the surface over which its fibres are spread. This it can only do by the mind's taking notice of it, so that sensation implies perception. The nerves at the stump of an amputated leg, when irritated there give the perception as at the foot or toe to which the nerve when unsevered had been attached, for that had been its established duty in its relation with the mind; and the perceptive mind yet adheres to its original consciousness, and still takes its perception as from a living foot, where now there is none. The perception that had formerly reached the extremity of a perfect nerve comes to consciousness as from that point, though the nerve has been touched midway. And when the optic nerve is involved by disease, its illusive visions produced by disease, appear as they would, if truly pictured on the retina; and so if the auditory nerve be so involved, the illusive sounds appear to enter the ear. And so too as to those bright visions and hymning tones by which the dying are often preternaturally visited, showing them, in advance celestial scenes and companionships such as they are about to enter, their outward senses seem to them still to have served them, and they wonder that their surrounding friends have not seen and heard all that they have so intensely enjoyed; but no outward sense had seen or heard that the mind had directly perceived. The appropriate nerve always ministers to the mind according to its original appointment, and responds as the faithful sentinel, only from the assigned post of duty, and there it is that report is made to perception. Sensation and perception appear to be synonymous and simultaneous and at the same point; but the conception of ideas, and the mental processes of thinking, comparing, imagin-

ing, judging and willing, are carried on in the superior brain, by which man is distinguished above all other creatures. Physiologists speak of the sensorium or central ganglia, below the cerebrum, as the common centre of sensation; but our own consciousness when thinking, and our penal head-aches for over-much thinking, plainly say to us that the crowning and frontal hemispheres of the brain are the seat of thought and mind. It is the mind in that little space that rules the world.

The reflective anatomist as well as others, is struck with wonder when contemplating the human brain as the seat of thought and sovereign will; yet as poet he must speak figuratively: He exclaims as he looks upon it,

"Then mark the cloven sphere that holds
All thought in its mysterious folds;
That feels sensation's faintest thrill
And flashes forth the sovereign will:
Think on the stormy world that dwells
Locked in its dim and clustering cells!
The lightning gleams of power it sheds
Along its hollow glassy threads!"

Dr. O. W. Holmes.

Such combination of body, life, mind and feeling, are indeed, more wonderful than miracle, and justify the anatomist and poet in his prayerful conclusion:

"O Father! grant Thy love divine
To make these mystic temples thine."—(*Ib*)

The great fact is never to be forgotten, that the body is fed only by material food; that the brain and the nerves are also fed as the residue of the body from the living blood; but that the mind is ever and only can be fed by immaterial perceptions of outward and inward material things, and as it is self-fed by its own immaterial thoughts and inherent emotions. How amply the physical brain is fed by the blood is apparent when physiologists tell us, that its proportion to the whole body is as one to thirty-six, while one-fifth of the whole volume of blood is in circulation there.

There is another test we may also daily observe in others and in ourselves, showing that mind and body are not alike nourished, namely, that the gross feeding that expands the body, does not enlarge, but obscures the mind. That the mind is usually clearest and most effective when men are abstemious and temperate, provided only they eat enough to keep up their normal strength. Many bright minds that have enlightened the world, would never have been its shining lights, had not their bodies been frail and their physical organization delicate; indicating, not that the body and mind were one, but that the body's grossness had not overlaid or obstructed the free thinking and reasoning mind.

The power of mental consciousness and his capacity to think constitute man's great distinction. Mind makes him man and lifts him above all other creation. It is the mind that yields him all his purest and truest pleasures. We say that the eye sees and the ear hears. These senses are but inlets to outward sights and harmonies; it is only the mind that perceives

and enjoys. The transporting prospect we look upon; the landscape of lawn, trees, river and mountain; or the music that charms us with indefinable delight, are pleasures inherent in the mind, inborn of the soul. Led by the great Dramatist we willingly say with him,

"Here will we sit, and let the sounds of music
Creep into our ears: Soft stillness and the night
Become the touches of sweet harmony!"
"Such harmony is in immortal souls."

And such inner sense of the beautiful; our moral sense; our sympathy with our fellow beings; our emotions in worship; "our sense of an endless being;" are all inborn of the soul, and assure us ours is the harmony of "immortal souls." Necker, statesman of France, also reassures us of that Shakespeare so beautifully said; "the whisper of the gales, the murmur of waters, the peaceful agitation of trees and shrubs, would concur to engage our minds, and affect our souls with tenderness, if our thoughts were elevated to one Universal Cause." It is thus in thought and emotion that alone we can rise to commune with our higher self, with the highest endowments of our friends, and with Deity.

The materialist supposes he has advanced his theory when he tells us that it has been found, after a speaker has used extraordinary mental exertions, an analysis of his urine shews an increase of phosphorus; and this is inferred to be a material residuum of the speaker's spent thoughts! The idea must be that phosphorus is the matter most likely to be mind. Let us apply another test, not material, to this supposed experiment, the scrutiny of the thinking mind itself. The exertions of the speaker were probably much more physical than mental, and the result, if true, would be more properly assignable to physical causes. The ideas of the speaker are commonly formed in advance, in his study, in quietude, and the best of them in the wakeful hours of the night, when the body is in perfect repose. The delivery of them so far as the intellect is tasked, is more the easy exercise of memory than the formation of new ideas. But to make the delivery of them impressive the orator exerts his voice; gives violent play to the lungs; uses earnest gesture; accelerates the circulations; produces perspiration; and it would be an obvious consequence even if there were no increase of the phosphoric deposit, that as much of the water in the blood has gone out through the pores of the skin, which would otherwise have diluted the urine, that the phosphorus appearing in it is found in larger proportion.

Though matter be essential to the growth and transmission of all life; though matter and life be essential to sustain the mind in its manifestations in this world; all these three are of very distinctive nature. In the plant there is life, but no brain or nerves, nor feeling or mind. These, therefore, are not necessary to the phenomenon of life. It is the nourished blood of other composition than vegetable protoplasm that must flow and bear the life sustaining material of the animate being, and that for brain and nerves as well as the residue of the body. You may intercept the mind's perception, and life will go on; but intercept the blood's circula-

tion and the excluded part is killed. Sir T. C. Morgan, M.D., says: "If the supply of blood be cut off from a limb, by means of ligatures made upon its arteries, sensibility of all kinds is in a very short time extinguished; and the part dies, and undergoes the same changes, as supervene on the death of the whole body." "If, on the contrary, the circulation continue uninterrupted, and the ligature be cast round the nerves of the limb, so as to cut off its communication with the cerebral centre, the other tissues will continue their functions uninterrupted by the accident." "These counter-experiments clearly demonstrate that the nervous system is not the fountain of life to the rest of the economy; but receives its animation, in common with all other tissues, from the action between its own vessels and the circulating fluids." (Philosophy of Life, 217.) Thus the incomprehensible life requires matter as the vehicle of its manifestations; and the incomprehensible mind requires matter, including brain and nerves, as well as the life, for its manifestations; but the distinctly manifested actions of both are full of diversities and contrarieties. As life cannot account for and produce matter, nor matter life; so do neither, or both together, account for, or produce mind, but only subserve it. For each the Cause can only be logically sought in a Creator; and for their wonderful combination, and concurring, or counter actions, in the being man, we can, in reason, only refer ourselves to Him who transcends all and knows all, even the thoughts and mind of man. That mind that is not matter nor the life, but is above these; that has no likeness on earth; proves itself of all we know the most like unto God who is a spirit. It alone in nature reviews its own consciousness, as under an inevitable sense of moral and religious duty and accountability, and asks and answers the question, "My soul is it well with thee?" If there be another such being in the universe, it can only be an angel in heaven.

Xavier Bichat, who studied and wrote at the end of the last century and until the second year of this, and had much experience in surgical practice during the French Revolution, was certainly the profoundest physiologist of his day. He did not fail to perceive that the human mind was something different and higher than the brain and the nerves, which he regarded as but material instruments of the mind. He considered a want of harmony in the two superior hemispheres of the brain as cause of imperfect perception, not by the brain, but by the mind or soul, saying, "for the brain is to the soul what the senses are to the brain; it transmits to the soul the impressions conveyed to it by the senses, as the senses convey to the brain the impressions made upon them by external objects." (On Life and Death, 30-31.) "If both (the hemispheres) do not act alike, the perception of the mind, which ought to be the result of the two sensations united, will be inexact and irregular." (p. 31.) He enquires whence arises the facility which our sensations have of undergoing so many modifications, and answers, "To conceive of it, let us first remark that the centre of these revolutions of pleasure, of pain, and indifference, is by no means seated in the organs, which receive or transmit the sensation, but in the soul." (Ib. 49.) Thus imperfect perception and

apprehension, and indeed, imperfect intellectual power come from defects in the material instruments that serve it, but it is to be said that the defective structure produces deficient mind only in the sense that it has served the mind with imperfect perceptions, and hence with erroneous conceptions for its use. The nature of the mind may thus be the same in all, though furnished with perceptions and ideas, and exercised and developed, as variously, as the number of human beings. Then, again, the physical constitution and the animal passions, as well as the emotions and affections, social, moral and religious, will also differently affect the sensations, perceptions, and powers of reasoning; our thoughts, imaginations judgments and character, and yet not be the mind that thinks, reasons, judges and acts. They are most important parts of the being but the physical can be no part of the mind,

Yet Mr. Huxley tells us that our thoughts "are the expression of molecular changes in that matter of life which is the source of our other vital phenomena;" but he states no reason why this should be so; why matter or life separately or together should produce thoughts. He takes no notice of their contrary nature and operations from matter. Now, as we have seen, the process of life gives its own proofs immeasurably surpassing in accuracy that of the microscope, as to all that enters into the composition of the plant or animal, as attested by products infinitely varied, and thereby has proved all protoplasms not to be *bases* of the same nature, and that life uses other elements in her structures; so the different natures and actions of thoughts and mind from life and matter, must be taken as proof that they are not one with, nor can be produced by matter, or yet be the life that has subjected matter to her uses. The life, instead of producing mind, is made subject to the mind, as to its uses, what it shall be; whether it be more worthless than the festering charnel heap, or in purity, perfection, beauty and glory, it shall be the fitting companion of immortal immaculate beings.

Professor John Tyndall, always ardent and hopeful in scientific discovery, does not leave the materialist without hope in the future, yet does state this: "I do not think he is entitled to say that his molecular groupings and his molecular motions *explain* every thing: In reality they explain nothing." "The problem of the connection of body and soul is as insoluble in its modern form as it was in the prescientific ages." "The passage from the physics of the brain to the corresponding facts of consciousness is unthinkable." (Fragments of Science, 119). True, the manner of the connection is unthinkable, but the fact of such connection between very dissimilar things all must admit who do not deny the evidences of their senses, the proofs of experiment, and of the mind's testimony unto itself: and the higher significance of mind and emotion seems equally obvious.

The mind is placed in closest alliance with the body, but is of different constituency and power. Set over the body to rule it, her throne is in the brain, whither the nerves of sensation are ever giving information from without and within; whence her judgments are ever issued, and executed through the nerves of command. Would you liken this to the telegraph?

you must carry the comparison to include both operator and sender of messages; must note that in the centre is the mind that thinks, and that receives, and sends the messages, and commands and executes as well. There is still the mastery of mind, ever asserting her power over matter, and her own likeness unto God. And though so small a speck, there is nothing known to man that will so bear to be put in comparison with our conception of Deity, who is a spirit, as the immaterial mind of man.

It is not to be doubted, after the experiments and observations of Prof. Matteucci, and Drs. Du Bois-Reymond, Carpenter and Radcliffe, that electricity pervades the nerves and muscles of the body, the precise service of which awaits further development, but is supposed to be identified with the ordinary force and action of the nerve and muscle. Dr. Radcliffe says, as the result of his investigations, "There is reason to believe that all kinds of electricity act upon nerve and muscle by way of charge and discharge, the charge antagonizing, the discharge permitting, the state of action." Whatever may be further ascertained as to the agency of electricity in the animal economy, of this we may be assured, that it will act subserviently to life and to the will. So it is found in the electrical eel and the torpedo fish, in which life largely accumulates it, and the will discharges it upon an enemy, in electric shocks, but only so long as the supply lasts, when the belligerent thus armed must await renewal of supply by natural recuperation. With all animate creatures rest after fatigue is the appointed means for renewal of strength to muscle and nerve, to become fitter instruments of the will; and that is to say, after the exacting will has ceased to enforce wasteful action, the life process works on during repose to restore the strength, and the more perfectly if we sleep. The strength or electricity would not be given us without the life give it, and neither is to be identified with the life, or mind or will.

I suppose there are few of active mind who have not the consciousness, when going to sleep, of those sudden nervous throbs that tell us that a disturbed electricity is seeking its equilibrium in the body, and thus several times defeating the desire to sleep. This occurs at the moment of obliviousness; shewing that the mind had until then restrained electrical action; but which ensues as a physical action in the body, as soon as the mind ceases to rule. Many materials concur to build the human temple and to subserve the life. The blood alone has its more than dozen elements; its water, albumen, fibrin, sodium, lime, magnesia, iron, &c., and heat and electricity may warm the body and aid the vital functions, yet be not mind.

And our minds

"Are not wholly brain,
Magnetic mockeries;" * * *

"Not only cunning casts in clay:
Let science prove we are, and then
What matters science unto men?"

Tennyson.

Prove man is worthless, then is science worthless all.

One so practical and learned as Dr. Carpenter, and so fully informed upon the results of modern scientific investigation, and himself writing as a life-long teacher of physiology, regards the brain as the instrument

of mind other than itself. "The physiologist knows full well, that the immediate operation of the will is not upon the muscle but upon the brain." "We have not only evidence of the excitement of nerve-force by mental agency; the converse is equally true, mental activity being excited by nerve-force." And he proceeds to say, "it is obvious that the view here taken does not in the least militate against the idea, that mind may have an existence altogether independent of the material body through which it thus manifests itself." "In the control and direction which the will has the power of exerting over the course of the thoughts, we have the evidence of a new and independent power, which is opposed in its very nature to all the automatic tendencies, and which, accordingly as it is habitually exerted, tends to render the individual a *free agent*." (Physiology, secs. 585, 586, 588.)

The capacity of the body is limited. Its growth cannot be forced. It can add not a cubit to its stature. But no limits can be assigned to the acquisitions of the mind. While he has life man may learn. True, students, ardent and ambitious, will often sacrifice their lives in the pursuit of knowledge; but that is not because the mind has taken into itself more than it will hold, but more rapidly than the frail body will bear, and in manner violating the laws of health; those laws that require the exercise of the muscles, the play of the lungs in breathing fresh air, and an accelerated movement of the circulations, of the assimilative process, and of all of life's functions; and due rest and sleep. The versatile and boundless ranging mind must wait upon the limited conditions of its subservient companion; by wisely doing which this life may last long, and the mind ceaselessly acquire increase of knowledge and power. But ever the master mind must be doing, or naught is done.

Dr. Carpenter, as a purely scientific teacher, also speaks of the soul's relation to the Infinite; and of its constituting one of the most distinctive peculiarities of man, and as the main-spring of human progress. He says the desire for improvement grows by what it feeds upon; "in the higher grades of mental development there is a continual looking upward, not towards a mere elevated human standard, but at one to something above man and material nature." He desires to participate in a spiritual existence; "of which the germ has been implanted in the mind of man, and which, developed as it is by the mental cultivation, * * * has been regarded by philosophers in all ages as one of the chief natural arguments for the immortality of the soul." (Physiology, Sec. 7.) And he concludes his work on Animal Physiology in these words: "The philosopher who has attained the highest summit of mortal wisdom, is he who, if he use his mind aright, has the clearest perception of the limits of human knowledge, and the most earnest desires for the lifting of the veil that separates him from the Unseen. He, then, has the strongest motives for that humility of spirit and purity of heart, without which, we are assured, none shall see God."

While I would thus elevate mind to its truthful distinction and pre-eminence, I would say nothing to disparage the material and living creation. While physicists ascribe all to matter; all matter, all life, all mind,

and nothing to God, I ascribe all to Him; yet regard matter as essential means to all life, and to the exhibition of all mind upon this earth. We see God's good design in physical nature, and that design we must reverence, and learn to adore Him in the sublimity of his works. Without this material earth, and sun that lights and warms it, there would be none of the life that we behold: would not be human souls to people heaven. Climate it is to be admitted, does make the Esquimaux and the Negro what they are. Unfriendly to life and its happiest physical development, it is also unfriendly to intellectual, to moral and religious culture; and it also fails either in the productions needful for man's uses and improvement, or produces animal and vegetable life so rankly as to over-master the unskilled native until he shall be helped by the stronger and more inventive man of the temperate zone. But it follows not that the mind is the production of the surrounding physical causes, but only that these have not so well developed the instrument the minds must use; and consequently the mind itself is not so fully developed.

The mind it is that is ever conquering nature and moulding matter and ruling life. It reclaims the earth to culture, fells the forest, drains the morass, destroys wild beasts; mines the fuels and metals; makes and applies iron to its ten thousand uses; constructs railroads and telegraphs; creates the arts and sciences; educates mankind generally unto a higher civilization, and makes a large proportion almost what they should be; that is to say, learned, temperate and wise, lovers of man and worshipers of God; and all are advanced in moral conduct, except the irreclaimably vicious. The task remaining before our humanity is to endeavor to cause the people to approximate the standard of perfection, and if, peradventure, we get a majority of such, the world will have made inestimable progress. And why should we not all strive for such consummation? In every branch of business, men exert a wonderful amount of common sense and acuteness of thought, and achieve admirable success. Half the like assiduity and culture directed upon their own minds would produce a transformation of character and increase of intelligence, that would excite their wonder and the admiration of the world. Mind only can do it, but mind can work the consummation; and that is the great hope of all thoughtful good men.

In all ages men have spoken of matter and mind; of the flesh and the spirit; of body and soul, as things of contrasted nature, and as at strife, until one has attained the rule over the other; and if that rule be of the flesh or the sensual passions, it is a dominion of sure degradation and early destruction; but if it be of the truthful mind, then is it a dominion of peace and wisdom. Paul said, "I see another law in my members warring against the law of my mind," with the sin in those members his sense of duty was also at war; and to desist from fulfilment of the sense of duty, was to him intolerable woe. Mankind have always made such contrast and adopted their lesson of discipline from the requisition of an exacting conscience, and by induction from surely observed facts. And when our friends are with us in life what is it that so much engages our attachment and love and veneration for them? Not surely the body, except slightly by association, since it is the temple where higher excellences

dwel ; but it is the intelligent mind, the loving heart, the well tried virtues ; and when death has taken our friend, for what is our sorrow ? Not for the body, so little distinguishable from other bodies, but for the intellectual and social companion, who had requited our love, but may never again ; that instructor and adviser with whom we took wise counsel, but shall no more on earth forever. It is for the social and good and generous mind that we grieve with a grief that refuses to be comforted, except as we find it in the faith that assures us we shall meet again, never again to be separated ; a necessary faith of human consolation, and therefore proof to ourselves that our minds and virtuous affections shall be immortal. This was the testimony of Buckle, as to his own experiences and reflections after he had witnessed the slow decline and death of his beloved mother ; testimony that refuted the skeptical philosophy of his life ; and has redeemed his memory from apparent heartlessness, and made it very beautiful to those whose philosophy grasps the immortality of the soul.

Matter and life are always undergoing changes, and both in the human body, kept in health, will live through length of happy years ; but at some time they will hasten towards dissolution, and come to the end of their organism ; and the life will only thereafter continue as it has been imparted to offspring. But mind or thought is everlasting, if there can only be found imperishable material to hold its expressions. If the printed page, or the canvas, or marble will endure, the thoughts of the author and artist will last forever. The eternal thought can then only be assailed through its allied perishable material ; and that mind shall never perish, it only needs an imperishable, a "celestial body" ; and that it should be translated into one, or live independently of one, should be no more a mystery to philosophy than that the human soul has existed in its mortal habitation ; is not more questionable as within the power of the Almighty and His fulfilment of the logic of His creation, than the fact that a blade of grass shall grow, or that this body is now the habitation of a human life.

The subject of this discourse might be continued through volumes, and the writer be all the while dealing with as veritable realities as those that occupy the physicist or naturalist, whose great deficiency so often is, that he becomes so wedded to the material that he disregards the mental and moral in his philosophizing, and is, therefore, possessed of but half the facts needful as a basis whence to make induction of all the great truths of Creation. He needs to know more to become wiser and more charitable ; and the metaphysician and theologian also need to know all the truths of physical nature the former can develop, all of them God's truths, that they may become more fully informed, and, perhaps, more charitable ; that they may clearly know the physical works and laws of the Creator, and the more perfectly love and adore Him. Each class is in possession of numberless invaluable truths, but neither possesses so many as it should know ; and this is partly owing to the wall of partition their hostility has erected between them. While it is natural that each should cling strongly to its convictions, those convictions must be based upon all facts requisite to truth, that they may endure.

And here let me not be understood as making a general charge of

materialism against physicists, for I am happy in believing that the great majority of physicists are not materialists. I give credit to all who disavow a materialistic faith, including Dr. Huxley ; giving credit to the like disavowals here, there is no materialist known to me in this Society. I have been enabled to use the authority and facts furnished by eminent physicists, with great advantage, to sustain the views expressed in this essay, as those of Bichat, Morgan, Carpenter, Holmes and Tyndall.

While the drift of Professor Huxley's lay sermon favors materialism there is that in "systematic materialism" that repels him as something pernicious. The last words of the sermon are these : "The errors of systematic materialism may paralyze the energies and destroy the beauty of life." He has some other faith, therefore, which preserves him from the deadly influence he deprecates, and the loss of the sense of the beauty of life which he loves. It can only be a more elevating philosophy, by his concession, that can preserve to us a sense of the beauty of life ; may we not say, "the beauty of holiness ?" Such good fruit must be proof of the greater truth of the higher philosophy he conceives and believes, yet does not explain or advocate, but has sought to supplant. Now how only do men attain their highest sense and example of this "beauty of life ?" It is by a belief in the immortal life, and by cherishing the highest ideal of perfection, which that belief ever presents to our apprehension, with an obedience to the injunction to strive to be perfect as the highest perfection ; even looking to the perfection "of our Father in heaven." That cannot be the truth of life that could "paralyze the energies and destroy the beauty of life." Why then seek to build up a philosophy which condemns itself ? Why seek to establish a theory at which our given sense of truth and beauty revolts ? Why seek to entomb the mind in matter, and thereby lose our own soul ? The useful, the beautiful, and the perfect in God's creation attest the truths thereof and that it is His. It remains ever to be a sure test, by their fruits are all things to be known.

I would now leave it as the testimony of one who has lived longer than the allotted three score years and ten, not unobservant of men, nor unreflecting upon the question of the wherefore of our being, with a mind consciously open to the reception of every truth presented, for all that the conviction of one mind may be worth, that the doctrine of materialism cannot be adopted as a belief of mankind, until men shall become capable of confounding things the most opposite in nature ; until they can believe that light can be darkness ; good be evil ; right wrong ; not until men can dis sever effect from its due cause ; logic from reason ; creation from its Creator. Not until then will they confound mind with matter. All nature demands a broader and truer interpretation, wherein every part shall have assigned to it its just significance, and unto the whole its adequate import be ascribed. Each and all imply no less than that there is a Creator, and that the human soul has a life immortal. If the soul of man has not this significance, then, truly, Creation is without adequate motive or result for all eternity. But if we be children and heirs of God, there is a sufficient solution of the purpose of our being, and an object worthy the glory of the universe.

